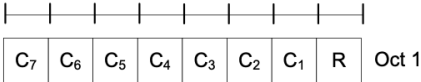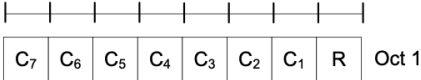# Exhibit 5

Exhibit 5
U.S. Patent No. 9,565,662
v.
AT&T's 4G Cellular Services ("Exemplary Product")

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
Claim 1	
[pre] A carrier management method of a base station for use in a carrier aggregation environment, comprising:	The Exemplary Product is a carrier management method of a base station for use in a carrier aggregation environment. For example, Defendant markets and sells 4G cellular services to customers. *E.g.*, https://www.att.com/support/article/wireless/KM1008740. The 4G technology used by Defendant is defined by a wireless standards body in which Defendant is a member, the 3rd Generation Partnership Project ("3GPP"). 3GPP promulgates a number of standards including the 36.xxx series that defines the standards for 4G. These standards, including the specific aspects of the standards discussed below, define a method for managing base stations such as those utilized by Defendant in offering its 4G cellular services. The Exemplary Product has been infringing since at least its implementation of the standards set forth in version 10.6.0 of the 36.xxx series. On information and belief, the functionality described in this chart has been implemented in all versions of the 36.xxx series published after version 10.6.0. The Exemplary Product may also have practiced the disclosed functionality prior to the publication of version 10.6.0 of the 36.xxx series. Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product

[a] transmitting a deactivation message for a secondary carrier to a terminal;	The base station in the Exemplary Product transmits a deactivation message for a secondary carrier to a terminal.
	
	For example, 3GPP TS 36.321 V10.6.0 ("TS 36.321") describes, among other things, the deactivation of SCells by sending a deactivation message to a terminal. *E.g.*, TS 36.321 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/36_series/36.321/36321-a60.zip) at 33, 42 (
	
	5.13 Activation/Deactivation of SCells
	
	If the UE is configured with one or more SCells, the network may activate and deactivate the configured SCells. The PCell is always activated. The network activates and deactivates the SCell(s) by sending the Activation/Deactivation MAC control element described in subclause 6.1.3.8. Furthermore, the UE maintains a *sCellDeactivationTimer* timer per configured SCell and deactivates the associated SCell upon its expiry. The same initial timer value applies to each instance of the *sCellDeactivationTimer* and it is configured by RRC. The configured SCells are initially deactivated upon addition and after a handover.
	
	The UE shall for each TTI and for each configured SCell:
	
	- if the UE receives an Activation/Deactivation MAC control element in this TTI activating the SCell, the UE shall in the TTI according to the timing defined in [2]:
	
	  - activate the SCell; i.e. apply normal SCell operation including:
	
	    - SRS transmissions on the SCell;
	
	    - CQI/PMI/RI/PTI reporting for the SCell;
	
	    - PDCCH monitoring on the SCell;
	
	    - PDCCH monitoring for the SCell
	
	  - start or restart the *sCellDeactivationTimer* associated with the SCell;
	
	- else, if the UE receives an Activation/Deactivation MAC control element in this TTI deactivating the SCell; or
	
	- if the *sCellDeactivationTimer* associated with the activated SCell expires in this TTI:
	
	  - in the TTI according to the timing defined in [2]:
	
	    - deactivate the SCell;
	
	    - stop the *sCellDeactivationTimer* associated with the SCell;
	
	    - flush all HARQ buffers associated with the SCell.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product

Figure 6.1.3.8-1: Activation/Deactivation MAC control element

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Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant. |
| [b] changing the secondary carrier to a deactivation state based on a predetermined time from the transmission of the deactivation message; and | The base stations used in the Exemplary Product change the secondary carrier to a deactivation state based on a predetermined time from the transmission of the deactivation message.

For example, TS 36.321 describes deactivating the SCell. TS 36.321 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/36_series/36.321/36321-a60.zip) at 33, 42 (|

'662 Patent v. AT&T's 4G Cellular Services

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product

	5.13 Activation/Deactivation of SCells
	
	If the UE is configured with one or more SCells, the network may activate and deactivate the configured SCells. The PCell is always activated. The network activates and deactivates the SCell(s) by sending the Activation/Deactivation MAC control element described in subclause 6.1.3.8. Furthermore, the UE maintains a *sCellDeactivationTimer* timer per configured SCell and deactivates the associated SCell upon its expiry. The same initial timer value applies to each instance of the *sCellDeactivationTimer* and it is configured by RRC. The configured SCells are initially deactivated upon addition and after a handover.
	
	The UE shall for each TTI and for each configured SCell:
	
	- if the UE receives an Activation/Deactivation MAC control element in this TTI activating the SCell, the UE shall in the TTI according to the timing defined in [2]:
	
	  - activate the SCell; i.e. apply normal SCell operation including:
	
	    - SRS transmissions on the SCell;
	
	    - CQI/PMI/RI/PTI reporting for the SCell;
	
	    - PDCCH monitoring on the SCell;
	
	    - PDCCH monitoring for the SCell
	
	  - start or restart the *sCellDeactivationTimer* associated with the SCell;
	
	- else, if the UE receives an Activation/Deactivation MAC control element in this TTI deactivating the SCell; or
	
	- if the *sCellDeactivationTimer* associated with the activated SCell expires in this TTI:
	
	  - in the TTI according to the timing defined in [2]:
	
	    - deactivate the SCell;
	
	    - stop the *sCellDeactivationTimer* associated with the SCell;
	
	    - flush all HARQ buffers associated with the SCell.
	
	Figure 6.1.3.8-1: Activation/Deactivation MAC control element
	
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	3GPP TS 36.213 V10.6.0 ("TS 36.213") describes the SCell being deactivated after a predetermined amount of time. *E.g.*, TS 36.213 (which can be downloaded at https://www.3gpp.org/ftp/Specs/archive/36_series/36.213/36213-a60.zip) at 9 (

'662 Patent v. AT&T's 4G Cellular Services

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	## 4.3 Timing for Secondary Cell Activation / Deactivation When a UE receives an activation command [8] for a secondary cell in subframe n, the corresponding actions in [8] shall be applied in subframe $n+8$. When a UE receives a deactivation command [8] for a secondary cell or a secondary cell's deactivation timer expires in subframe n, the corresponding actions in [8] shall apply no later than subframe $n+8$, except for the actions related to CSI reporting which shall be applied in subframe $n+8$.). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.
[c] stopping downlink (DL) data transmission of the secondary carrier and initializing uplink (UL) and DL buffers associated with the secondary carrier after transmitting the deactivation message.	The base stations in the Exemplary Product stop downlink (DL) data transmission of the secondary carrier and initialize uplink (UL) and DL buffers associated with the secondary carrier after transmitting the deactivation message. For example, TS 36.321 describes stopping transmissions and flushing all HARQ buffers associated with an SCell after the deactivation message is transmitted. TS 36.321 at 33-34 (

'662 Patent v. AT&T's 4G Cellular Services

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	## 5.13 Activation/Deactivation of SCells

If the UE is configured with one or more SCells, the network may activate and deactivate the configured SCells. The PCell is always activated. The network activates and deactivates the SCell(s) by sending the Activation/Deactivation MAC control element described in subclause 6.1.3.8. Furthermore, the UE maintains a *sCellDeactivationTimer* timer per configured SCell and deactivates the associated SCell upon its expiry. The same initial timer value applies to each instance of the *sCellDeactivationTimer* and it is configured by RRC. The configured SCells are initially deactivated upon addition and after a handover.

The UE shall for each TTI and for each configured SCell:

- if the UE receives an Activation/Deactivation MAC control element in this TTI activating the SCell, the UE shall in the TTI according to the timing defined in [2]:

  - activate the SCell; i.e. apply normal SCell operation including:

    - SRS transmissions on the SCell;

    - CQI/PMI/RI/PTI reporting for the SCell;

    - PDCCH monitoring on the SCell;

    - PDCCH monitoring for the SCell

  - start or restart the *sCellDeactivationTimer* associated with the SCell;

- else, if the UE receives an Activation/Deactivation MAC control element in this TTI deactivating the SCell; or

- if the *sCellDeactivationTimer* associated with the activated SCell expires in this TTI:

  - in the TTI according to the timing defined in [2]:

    - deactivate the SCell;

    - stop the *sCellDeactivationTimer* associated with the SCell;

    - flush all HARQ buffers associated with the SCell.

- if PDCCH on the activated SCell indicates an uplink grant or downlink assignment; or

- if PDCCH on the Serving Cell scheduling the activated SCell indicates an uplink grant or a downlink assignment for the activated SCell:

  - restart the *sCellDeactivationTimer* associated with the SCell;

- if the SCell is deactivated:

  - not transmit SRS on the SCell; |

'662 Patent v. AT&T's 4G Cellular Services

Claim Language	Selected Analysis and Evidence Regarding Exemplary Product
	- not report CQI/PMI/RI/PTI for the SCell; - not transmit on UL-SCH on the SCell; - not monitor the PDCCH on the SCell; - not monitor the PDCCH for the SCell.). Investigation of both the patent and the Exemplary Product (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Wireless Alliance reserves the right to update and amend its contentions, including adding additional claims and evidence, as the litigation progresses and discovery is provided by the defendant.

'662 Patent v. AT&T's 4G Cellular Services